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4. May 2010

Online at <https://mpra.ub.uni-muenchen.de/36581/>

MPRA Paper No. 36581, posted 12. February 2012 04:55 UTC

# EXPORTS AS AN ENGINE FOR THE ECONOMIC GROWTH: THE CASE OF ROMANIA

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## Abstract

This paper explores the dynamic relation between the exports and the gross domestic product from Romania. We employ the Johansen cointegration procedure and the Granger causality test to identify the interactions between the two variables. We find no cointegration but a unidirectional causality from exports to gross domestic product. We conclude the implementation of an export promotion strategy could be a solution for the Romanian national economy to surpass the actual severe recession.

**Keywords:** Export led-growth, Cointegration, Granger Causality

**JEL Classification:** F40, F41, F43

## 1. INTRODUCTION

Since 1970s the export promotion strategies replaced, in many countries, the import substituting industrialization strategies. In some of these countries, especially in those from South-East Asia, the adoption of the new strategy was followed by substantial increases of the gross domestic product, confirming the theories in which the exports are viewed as an engine for the economic growth.

Using exports as a tool for the economic growth was promoted in the works of Adam Smith and David Ricardo who revealed the role of international specialization. Balassa (1978) explained the impact of exports on the economic growth by some effects of the firms' orientation towards the foreign markets such as the technology transfer or improving the skills of managers and workers.

The hypothesis of export led growth (ELG) was tested in several empirical studies. Jung and Marshall (1985) studied the relation between the exports and the economic growth for 37 developing countries. For most of them they found evidences supporting the ELG hypothesis. To similar results arrived Chow (1987) and Bahmani-Oskoei and Alse (1993). However, the results of other studies failed to validate the ELG hypothesis. Jie (2008) examined 71 cases of high GDP growth episodes accompanied by high export growth, concluding that in many cases the economic growth wasn't caused by the exports.

In this paper we analyze the dynamic relation between the exports and the gross domestic product from Romania. In the present, Romania is affected by a very severe recession and its balance of trade experienced substantial deficits in the last two decades. In these circumstances the stimulation of economic growth and the export promotion are crucial

objectives for the Romanian authorities. Some characteristics of the Romanian exports are important for understanding its interactions with the economic growth. In the last years many multinational companies, attracted by the cheap labor force, established branches in Romania. In comparison with the domestic firms they have some substantial advantages on the foreign markets such as the modern technologies or the relations with the foreign partners. In 2009, 76 percent of Romanian exports were realized by foreign direct investment. In January 2007, Romania adhered to the European Union and its products gained unrestricted access to the European markets. Since then, the exports to the European countries increased substantially arriving, in 2009, at 71 percent from the total exports. For the relation between the exports and the gross domestic product analysis we use cointegration and the Granger Causality tests for quarterly data from 1999 to 2009.

The rest of this paper is organized as follows. In the second part we approach the data and the methodology. In the third part we present the empirical results and in the fourth part we conclude.

## 2. DATA AND METHODOLOGY

In our analysis we employ quarterly values of the Romanian real gross domestic product and of the real exports of goods and services provided by the Romanian National Institute of Statistics. We use a sample of data from 1999 Q1 to 2009 Q4. All the values are seasonally adjusted by ARIMA X 12 method.

We use the following variables:

- rexp, as the natural logarithms of the real exports seasonally adjusted;
- yrom, as the natural logarithms of the real gross domestic product seasonally adjusted;
- d\_rexp, as the first differences of rexp;
- d\_yrom, as the first differences of yrom.

We investigate the stationarity by two tests of unit roots: the Augmented Dickey – Fuller Test and the Saikkonen - Lutkepohl - Lanne Test, which allow taking into account the structural breaks. For both tests the number of lags will be chosen based on the Schwartz Bayesian Criterion. We employ the Johansen Procedure to test the cointegration relations and the Granger Causality Test to identify the causalities between the variables.

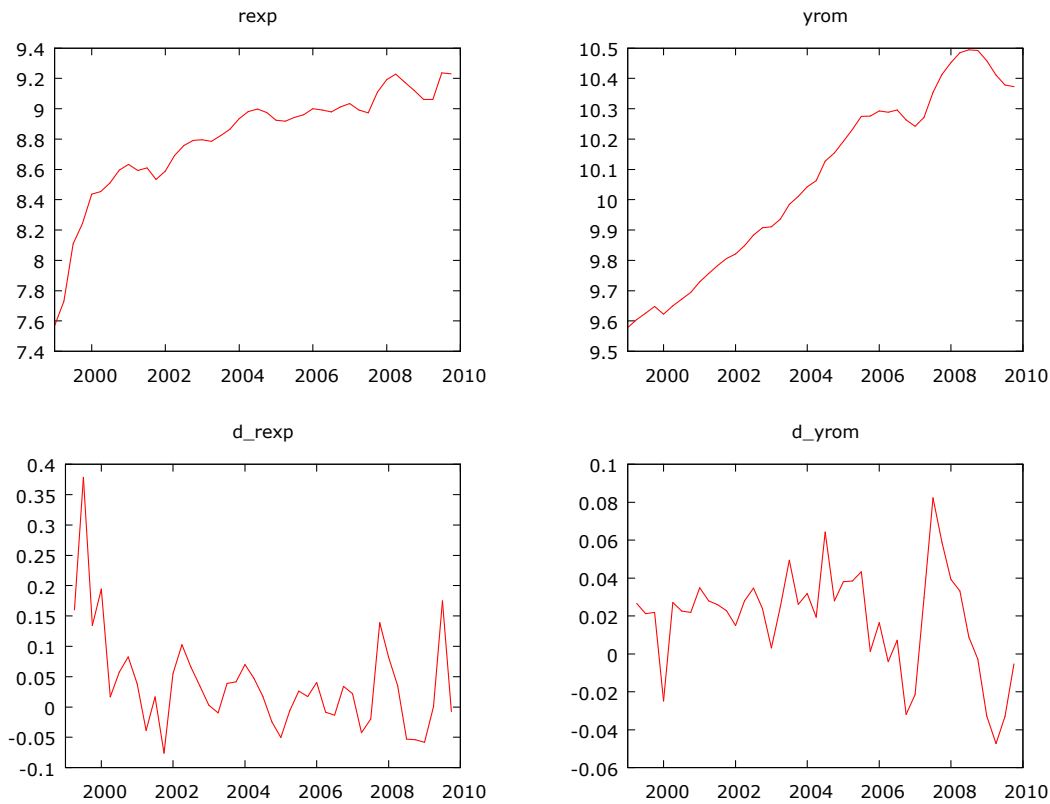
## 3. EMPIRICAL RESULTS

We perform the Augmented Dickey Fuller Tests for the four variables. Based on the graphical representation we chose as deterministic terms intercept and time trend for the level values and only intercept for the first differences (Figure 1). The results, presented in Table 1, indicate the variables are stationary only in their first differences.

**Table 1 - Results of Augmented Dickey Fuller Tests**

Nr. crt.	Variable	Deterministic terms	Number of lags	Value of test statistic	Asymptotic critical values		
					1%	5%	10%
1	rexp	intercept,	1	-1.8804	-3.96	-3.41	-3.13

		time trend					
2	yrom	intercept, time trend	1	-2.1191			
3	d_rexp	intercept	1	-3.0810	-3.43	-2.86	-2.57
4	d_yrom	intercept	1	-2.8636			



**Figure 1** - Graphical representation of the level values and of the first differences for rexp and yrom

The results of the Saikkonen - Lutkepohl - Lanne Test, presented in Table 2, confirm that rexp and yrom are not stationary in level values but stationary in their first differences.

**Table 2** - Results of the Saikkonen - Lutkepohl - Lanne Test

Nr. crt.	Variable	Deterministic terms	Number of lags	Used break date	Value of test statistic	Asymptotic critical values		
						1%	5%	10%
1	rexp	intercept, time trend	1	2004 Q2	-2.1368	-3.48	-2.88	-2.58
2	yrom	intercept, time trend	1	2006 Q2	-2.1923			
3	d_rexp	intercept	1	2000 Q3	-3.8098			

4	d_yrom	intercept	1	2007 Q3	-3.0154			
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We investigate the cointegration between rexp and yrom using the Johansen procedure. The results, presented in the Table 3, indicate no cointegration between the two variables.

**Table 3** - Results of the Johansen cointegration test

Rank	Eigenvalue	Trace test	p-value	Lmax test	p-value
0	0.52179	36.658	0.0000	31.722	0.0000
1	0.10845	4.9360	0.0263	4.9360	0.0263

We analyze the causalities between the two variables. The results of the Granger Causality tests, presented in the Table 4, reveal a unidirectional causality from rexp to yrom.

**Table 4** - Results of Granger Causality Tests

Null hypothesis	F-statistic	P-value	Causal inference
H0: "yrom" do not Granger-cause "rexp"	1.3003	0.2791	"yrom" do not Granger-cause "rexp"
H0: "rexp" do not Granger-cause "yrom"	2.4143	0.0971	"rexp" Granger-cause "yrom"

#### 4. CONCLUSIONS

In this paper we approached the dynamic relation between the exports and the gross domestic product from Romania. We found no cointegration between them, but a unidirectional causality from the exports to the gross domestic product.

These results suggest that an export promotion strategy implemented by the Romanian authorities could succeed in generating economic growth. This option could be an important part of the solution to surpass the severe recession which affects Romanian economy.

The investigation on the ELG hypothesis could be extended to the relation between the main components of the exports and the gross domestic product. The interactions between imports and economic growth could be also taken into consideration.

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